THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

5   1.   A telecommunications network, comprising;

plural routers; and

at least one protected router comprising a router table, the router table having an entry identifying an alternative route around an adjacent router to the protected router in case of failure of the adjacent router and a port associated with that entry.

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2.   The telecommunications network of claim 1 in which there is associated with each router in the alternative route has a routing table with an entry identifying the alternative route and a port associated with that entry.

15   3.   A protected router, comprising a router table, the router table having an entry identifying a cycle of routers encircling an adjacent router to the protected router and a port associated with that entry, the cycle of routers including all routers logically adjacent to the adjacent router and not the adjacent router.

20   4.   The protected router of claim 3 in which the cycle of routers includes only logically adjacent routers to the protected router.

5.   The protected router of claim 3 in which the protected router has a router table in which is stored, for each adjacent router to the protected router, an entry identifying a cycle

25   of routers encircling an adjacent router to the protected router and a port associated with that entry, each cycle of routers including all routers logically adjacent to the respective adjacent router and not the respective adjacent router.

6.   A data packet comprising:

an ID field that specifies a p-cycle of routers in which the routers in the p-cycle are all adjacent a router not in the p-cycle, a path cost field and a data field.

7.   A method of protecting against router failure in a network, in which the network
5   includes plural interconnected routers, the method comprising the step of:

storing at a protected router an entry identifying a cycle of routers that form at least one alternative route around an adjacent router to the protected router, in which the cycle of routers includes all routers logically adjacent to the adjacent router and not the adjacent router.

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8.   The method of claim 7 further comprising the step of:
upon failure of the adjacent router, routing all data packets whose least cost path includes the adjacent router, around the alternative route beginning at the protected router.

15   9.   The method of claim 8 in which each data packet routed around the alternative route contain an ID field that identifies the cycle of routers, a path cost field containing the cost of the least cost path and a data field.

10.   The method of claim 9 in which each router in the alternative route has a router table
20   having an entry that identifies the cycle of routers and continues to route the data packet around the alternative route until the path cost from a router in the alternative route to the destination of the data packet is less than the cost of the least cost path.

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